

REMARKS

On page 2 of the Action, claims 1-7 were rejected under U.S.C. 35 102(e) as being anticipated by U.S. Patent No. 3,156,493 to Griffiths. On page 4 of the Action, claim 8 was rejected under U.S.C. 35 103(a) as being unpatentable over Griffiths in view of U.S. Patent No. 5,050,922 to Falcoff.

In view of the rejections, claim 1 has been amended to include the limitations of claims 3 and 4 together with other limitations, and claims 3 and 4 have been canceled. Claim 5 has been amended to correct dependency. New claims 9-11 have been filed.

As recited in amended claim 1, a lock mechanism of the invention for locking a movable member to a base member comprises a cam fixed on the base member, and having a projection with a roughly heart shape and a swing groove formed around the projection; a swing member provided on the movable member to move laterally and vertically relative to the cam, and having a tip and a pin close to the tip for tracing the swing groove; and a spring member as auxiliary means provided on the base member and contacting the swing member while the pin is tracing the swing groove so that the auxiliary means allows the swing member to move properly. The spring member is located adjacent to the cam and contacts the tip of the swing member when the swing member is moved close to the projection to thereby urge the swing member from one side of the projection toward the other side of the projection.

In the present invention, the swing member is provided on the movable member to move laterally and vertically relative to the cam. When the pin is tracing the swing groove, the spring member contacts the tip of the swing member to control the swing member to move properly. For example, in case the cam is disposed at a side wall of the base member, when the pin is tracing the swing groove, the pin may move downwardly due to a weight of the swing member, thereby causing a wrong operation. It is possible to reliably prevent such an operation when the spring member contacts the swing member to restrict the movement of the swing member.

In the present invention, the spring member is a member independent of the swing member and provided on the base member

where the cam is provided. Therefore, the spring member can have a simple structure and is flexible in terms of design. Also, the spring member is easily attached, and does not excessively restrict the movement of the swing member since the auxiliary means contacts only when the swing member is moved close to the projection.

Griffiths discloses a push button fastener. In Fig. 1 in Griffiths, a guide rod 90 is disposed in a frame 92 for supporting a housing 94. A plunger 98 slidably passes through a projecting arm 91 of the frame 92, and is provided with a cross pin 100 secured in the end thereof. The housing 94 is provided with cam elements 101 and 102 attached on opposed vertical sides thereof, so that the cross pin 100 trace along the cam elements 101 and 102. A compressive spring 106 is disposed between the projecting arm 91 and a washer 108 mounted on the plunger 98 for urging the plunger 98 in a projecting direction.

In Griffiths, when the cross pin 100 is situated in a detent 110 in the cam element 102, the push button fastener is in a locked state. From the locked state, when the plunger 98 is pushed inwardly against the compressive spring 106, the cross pin 100 moves out of the detent 100 and strikes an inclined cam surface 112. Accordingly, the housing 94 is pushed downwardly against a spring 95, and the cross pin 100 passes over an inclined cam surface 116 and enters a passageway 118, so that the plunger 98 projects outwardly into an unlocked state. When the plunger 98 is pushed inwardly again, the cross pin 100 strikes an inclined surface 120 to move the housing 94 upwardly. After the cross pin 100 passes through a passageway 122 and enters a limiting detent 124, when the plunger 98 is released to move outwardly, the cross pin 100 strikes an inclined surface 126 and enters the detent 110 in the locked state.

In the invention, the swing member is provided on the movable member to move laterally and vertically relative to the cam. In Griffiths, the plunger 98 slidably passes through the projecting arm 91 of the frame 92, which is not the movable member. In Griffiths, the plunger 98 moves laterally, but not vertically. Therefore, the swing member of the invention is different from the plunger 98 in

Griffiths.

In the invention, when the pin is tracing the swing groove, the spring member contacts the tip of the swing member to control the swing member to move properly. In Griffiths, the compressive spring 106 is disposed between the projecting arm 91 and the washer 108 mounted on the plunger 98, and does not contact a tip of the plunger 98. Also, in the invention, the spring member is provided on the base member where the cam is provided. In Griffiths, however, the compressive spring 106 is disposed between the projecting arm 91 and the washer 108 mounted on the plunger 98.

In the invention, the spring member contacts the tip of the swing member when the swing member is moved close to the projection to thereby urge the swing member from one side of the projection toward the other side of the projection. In Griffiths, the compressive spring 106 does not contact a tip of the plunger 98 when the plunger 98 is moved close to the cam elements 101 and 102. Rather, the compressive spring 106 urges the plunger 98 outwardly all the time regardless of the position of the plunger 98.

Accordingly, the spring member of the invention is different from the compressive spring 106 in Griffiths. In Griffiths, there is no disclosure or suggestion of the spring member of the invention. Griffiths does not disclose or even suggest the features of the invention.

Falcoff discloses an overhead console having a pivotable storage shelf-door. In Figs. 1 and 2 in Falcoff, an over head console 5 includes a wall structure 30 with an opening and a door 80 for closing the opening. The door 80 is provided with a catch 120 comprising a slot 125 defined by a recess 130 and a cam 135 with a notch 145. A spring detent 115 is attached to the wall structure 30 for engaging the notch 145 when the door 80 is closed and locked.

In the invention, the cam and the spring member are provided on the base member, and the swing member is provided on the movable member. In Falcoff, the cam 135 is provided on the door 80, i.e. a movable member, and the spring detent 115 is provided on the wall structure 30, i.e. a base member. In Falcoff, there is no disclosure or suggestion of the spring member contacting the swing

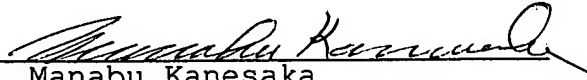
member while the pin is tracing the swing groove. Therefore, Falcoff does not disclose or suggest the features of the invention.

As explained above, the cited references do not disclose or suggest the features of the invention. Even if the cited references are combined, the invention is not obvious from the cited references.

Reconsideration and allowance are earnestly solicited.

Respectfully submitted,

HAUPTMAN KANESAKA BERNER
PATENT AGENTS, LLP

by 
Manabu Kanesaka
Reg. No. 31,467
Agent for Applicants

1700 Diagonal Road, Suite 310
Alexandria, VA 22314
(703) 519-9785